

## CHAPTER 2

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### OUTCOMES AND OBQI

#### A. WHAT IS SO IMPORTANT ABOUT OUTCOMES?<sup>1</sup>

Quality of health care can be examined from three fundamental perspectives. First, we can assess the adequacy of the “inputs” to care such as the care setting, the qualifications of care providers, and the equipment and technical devices used. This is the structural perspective of quality, and the specific measures used to assess quality from this perspective (such as percentage of RNs with bachelor's degrees at a given home care agency) are termed *structural measures* of quality.

Second, we can examine the “throughputs” to care such as specific interventions, comprehensiveness of assessment, and adequacy of care planning. This is the process perspective of quality, and the specific measures used to assess quality from this perspective (such as the frequency of wound assessment for a postsurgical patient) are termed *process measures* of quality.

Third, we can assess “outputs” of care by what happens to the health status of patients as a result of care. This is the outcome perspective of quality. Influencing outcomes is the fundamental reason we provide health care. The specific measures used to assess quality from this perspective (such as whether the surgical wound healed during the care interval) are termed *outcome measures*. The rationale for using outcome measures for quality improvement rests with the aforementioned fact that outcomes are why we provide health care.

In home health care as in other health care arenas, outcomes are of increasing interest and importance to many parties. (Outcomes always were important, but it has only recently been possible to adequately measure them.) Payers (such as Medicare, Medicaid, managed care plans, etc.) want to know what they obtain on behalf of their patients for the dollars spent. At the Federal level, outcomes were stressed for home health agency survey and certification in the Omnibus Budget Reconciliation Act of 1987. This emphasis increased with HCFA's (now CMS's) Medicare Home Health Initiative and is reflected in the current OASIS data collection and data reporting regulations. Accreditation programs, including those operated by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and the Community Health Accreditation Program (CHAP), also are focusing on outcomes. For example, the ORYX performance

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<sup>1</sup> Material in this chapter is based on Shaughnessy, P.W. and K.S. Crisler with A. Arnold, J. Beaudry, M. Powell, P. DeVore, D. Hittle, R. Schlenker, A. Kramer, S. Bostrom, and B. Campbell (1995). *Outcome-Based Quality Improvement: A Manual for Home Care Agencies on How to Use Outcomes*. Washington, DC: National Association for Home Care, August.

measurement program within JCAHO uses outcome measures for performance improvement.

In addition to payers and regulators, consumers and their representatives also are requiring information on outcomes from care providers. Organizations such as the American Association of Retired Persons (AARP) are active in this area. Equally important, home health agencies have always been concerned with measuring their own performance relative to other providers or to standards. The home health industry has strongly supported development of an outcome-based approach to quality improvement. This healthy interest in self-analysis at the agency level is at least as strong as the external forces arising from payers, regulators, and consumers.

With respect to OASIS-based outcome measurement and outcome-based quality improvement (OBQI), it is important to clarify what we mean by patient outcomes.

**What outcomes are:**

- Outcomes are health status changes between two or more time points, where the term “health status” encompasses physiologic, functional, cognitive, emotional, and behavioral health.
- Outcomes are changes that are intrinsic to the patient.
- Outcomes are positive, negative, or neutral changes in health status.
- Outcomes are changes that result from care provided, from natural progression of disease and disability, or from both.

According to these statements, an outcome is a health status change that occurs over time, where the change is intrinsic to the patient. Thus, a change in the patient's environment, such as the provision of a walker or handrails in the patient's residence, is not considered an outcome according to this definition—such changes are services or processes of care. Because the nature of the change can be positive, negative, or neutral, the actual change in patient health status can correspond to improvement, decline, or maintenance (i.e., no change) in patient condition. The definition of an outcome does not include a presumed direction; therefore, any deviation (or nondeviation) in health status between the initial time point and the follow-up time point constitutes an outcome.

Change in health status over the time interval during which care is provided can occur either as a result of the care provided or the natural progression of disease

and disability. The challenge in outcome analysis is to attempt to somehow separate changes due to care from those due to natural progression. This is achieved through a process termed risk adjustment. Statistical risk adjustment refers to a collection of analysis methods designed to separate the relationships of outcomes with care provided from the relationship of outcomes with natural progression of disease and disability, which is critical to accurate outcome analysis. In essence, the general intent of risk adjustment is to compensate or adjust for differences in case mix or risk factors (between the agency and a comparison sample) that should be taken into consideration if outcomes are to be compared validly.

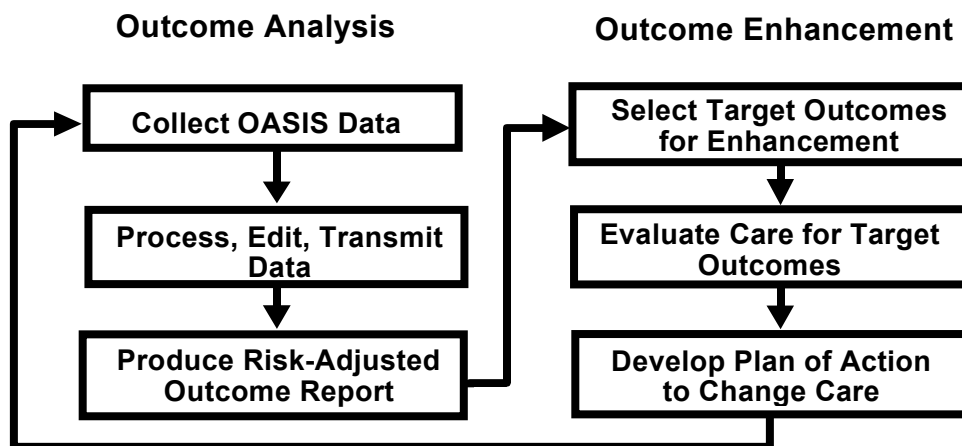
Assessments, care plans, clinical pathways, costs, and utilization of home care services have erroneously been labeled “outcomes” by various parties, creating considerable confusion. The confusion is due largely to two factors. First, as the outcomes movement has grown and become fairly pervasive, an almost inherent need has emerged to place a number of topics under the rubric of outcomes that simply do not belong there. The second factor is that at times, those who promote outcomes, give presentations on topics related to outcomes, coordinate quality improvement programs, or write on such topics have not always been clear on precisely what they mean by outcomes. Because of a rather human tendency to relabel older or more traditional ideas and methods within the context of a new or novel movement, care planning, treatment regimens, cost, and utilization have been called outcomes at times. They are *not*. OBQI is premised on a clear and practical definition of outcomes as changes in patient health status between two or more time points.

## **B. WHAT IS OBQI?**

Although the primary focus for Medicare-certified agencies to date has been on implementing OASIS data collection and transmission, it is important to remember that the OASIS data items and OASIS data do not represent an end in themselves. Rather, they are the means to achieve outcome measurement and OBQI. Appendix B to this manual contains a glossary of terms related to OBQI. To briefly summarize the OBQI approach, it is fundamentally a two-stage process as shown in Figure 2.1. The first stage of this process is outcome analysis. For the outcome analysis to be conducted for a given agency, it is necessary to collect uniform data (i.e., OASIS data) for the agency's patients. The result of the first stage is an agency-level report showing the agency's present performance in terms of patient outcomes relative to a national sample of home care patients. This is the first outcome report which an agency receives. Subsequent outcome reports contain comparisons of an agency's present performance in terms of patient outcomes relative to the preceding time period for the agency and relative to a national sample of home care patients. These outcome comparisons constitute the

outcome analysis portion of OBQI. This first stage should incorporate risk adjustment through grouping or statistical methods, as appropriate. As noted earlier, risk adjustment refers to the process of compensating or controlling for the potential influence of risk factors or case mix variables that can affect outcomes.

**FIGURE 2.1: Two-Stage OBQI Framework.**



The outcome report produced from the first-stage analysis helps to determine which outcomes are clearly inferior and which are clearly superior relative either to the prior time period or to the national sample. Therefore, the second stage (that of outcome enhancement) *starts* with those outcomes, termed target outcomes, identified for further investigation. By selecting target outcomes, providers can focus their attention and energies for quality improvement on the care processes that produced the target outcomes. Evaluating or investigating processes of care entails reviewing the care provided for those patients who contributed to the target outcomes. This review can take several forms, ranging from informal discussions and brainstorming with agency care providers to structured clinical record reviews.

The review process results in findings that must be translated into recommendations for changing or reinforcing certain aspects of care provision. These recommendations need to be systematically documented in a written plan of action for each target outcome (usually only a few target outcomes are chosen to provide a focus for quality improvement activities). The plan of action needs to be thoroughly implemented and continually monitored, which requires a strong agency commitment to changing care delivery for each target outcome.

Subsequent outcome reports will indicate how well the care process changes have worked—in terms of patient outcomes. Thus, in reviewing its next outcome

report, the agency should examine its target outcomes and the changes in those outcomes between the prior and current outcome reporting periods. Once OBQI is successfully implemented and becomes a “steady-state” activity, it emerges as a powerful agency tool to continuously improve care for the benefit of patients.

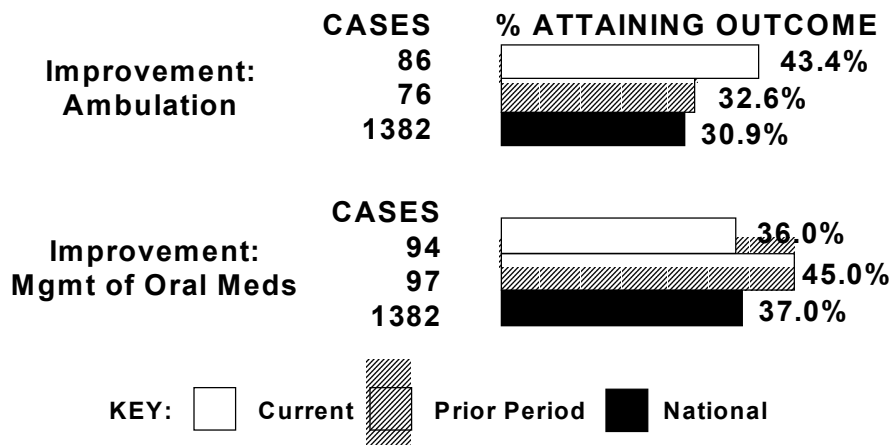
### C. REPORTS TO BE USED FOR OUTCOME ENHANCEMENT

Three types of performance-related reports can be generated from OASIS data. (All three reports will be defined here, though two of the reports were discussed previously in the manual *Quality Monitoring Using Case Mix and Adverse Event Outcome Reports*, which was made available by the Centers for Medicare and Medicaid Services in early 2001.) First, as noted earlier, an annual report can be produced which compares an agency’s outcomes to that of a national reference sample and to its outcomes for the prior year. An excerpt from an agency-specific outcome report is shown in Figure 2.2. Because the fundamental reason for providing home health care is to influence the well-being of patients, *outcome reports* reflect an agency’s true bottom line from the perspective of the impact of care provided on patients’ health. To be most meaningful, such reports must be risk adjusted to take into consideration the difference between a given agency’s patient characteristics (i.e., its case mix) and the case mix of the comparison group (a national reference sample or the case mix of the same agency in the preceding year).

The outcome report excerpt in Figure 2.2 presents results for two outcomes for the agency to which the report corresponds: Improvement in Ambulation and Improvement in Management of Oral Medications. The numbers of patients on which findings are based for the current (i.e., this year’s), prior (last year’s), and national (reference) samples are given in the “CASES” column. The percentages of patients attaining the outcome for each group (current, prior, or national samples) are presented as bar graphs. In this illustration, the agency’s performance was substantially better for the first outcome (Improvement in Ambulation) relative to both the preceding year and the national reference sample.<sup>2</sup> For the second outcome (Improvement in Management of Oral Medications), the agency’s performance dropped substantially from the preceding year but was approximately the same as the national reference sample.

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<sup>2</sup> In the actual reports on which Figures 2.2 and 2.3 and Table 2.2 are based, statistics are compared using significance tests. The significance levels for the differences are omitted in this section for ease of reading and to focus on principles rather than technical details.

**FIGURE 2.2: Excerpt - Outcome Report.****End-Result Outcomes**

Outcome reports can be generated for a number of clinical outcomes including physiologic, functional, cognitive, and mental health outcomes as well as utilization outcomes such as hospitalization, emergent care, and discharge to community. OASIS data can be used to construct a wide variety of outcome measures applicable to the general home care population or to specific types of patients. For the purposes of "global" outcome measurement (i.e., for all patients), 41 outcome measures were used in the national OBQI demonstration. These measures are presented in Table 2.1. The 41 outcomes were selected on the basis of both clinical and statistical criteria. In general, these outcomes meet the following criteria:

- They display sufficient variation within the home care patient population (i.e., they are neither extremely rare nor universally common).
- They can be affected by the care provided by a home care agency.
- They are amenable to risk adjustment (i.e., risk factors are readily measured and empirically demonstrate a statistical relationship with the outcome).
- They reflect meaningful aspects of health status or quality of life for home care patients.

The specific outcome measures included in the reports available in early 2002 were finalized after intensive review of the risk models developed from the

national OASIS data. Only the most scientifically sound measures are included in the reports.

**TABLE 2.1: OASIS-Based Outcome Measures Used in the National Medicare OBQI Demonstration.**

<b>End-Result Outcomes<sup>a</sup></b>	
Improvement in grooming	Stabilization in housekeeping
Improvement in dressing upper body	Stabilization in shopping
Improvement in dressing lower body	Stabilization in phone use
Improvement in bathing	Stabilization in management of oral medications
Improvement in toileting	Improvement in speech or language
Improvement in transferring	Improvement in pain interfering with activity
Improvement in ambulation/locomotion	Improvement in number of surgical wounds
Improvement in eating	Improvement in status of surgical wounds
Improvement in light meal preparation	Improvement in dyspnea
Improvement in laundry	Improvement in urinary tract infection
Improvement in housekeeping	Improvement in urinary incontinence
Improvement in shopping	Improvement in bowel incontinence
Improvement in phone use	Improvement in behavioral problem frequency
Improvement in management of oral medications	Improvement in cognitive functioning
Stabilization in grooming	Improvement in confusion frequency
Stabilization in bathing	Improvement in anxiety level
Stabilization in transferring	Stabilization in speech or language
Stabilization in light meal preparation	Stabilization in cognitive functioning
Stabilization in laundry	Stabilization in anxiety level
<b>Utilization Outcomes<sup>a</sup></b>	
Any emergent care provided	Discharged to community
Acute care hospitalization	

<sup>a</sup>End-result outcomes are health status outcomes. Utilization outcomes suggest but do not unequivocally reflect health status changes (and, as a result, can be regarded as proxy or surrogate outcomes).

As a second OASIS-derived report, the case mix report describes the characteristics, circumstances, disabilities, and diseases of patients admitted to an agency over the past period relative to both a national case mix reference sample and the case mix of the agency during the preceding year. This report can be helpful in influencing many decisions an agency makes about patient care delivery, including allocating or reallocating staff, including possibly changing staff mix, because changing case mix from the preceding period may highlight the need for alternative staffing arrangements. As shown in the excerpt from the case mix report in Table 2.2, information on demographics, payer source, etc. is presented (about 150 items are contained in case mix reports). This information can be of value not only from the point of view of resource allocation but also for

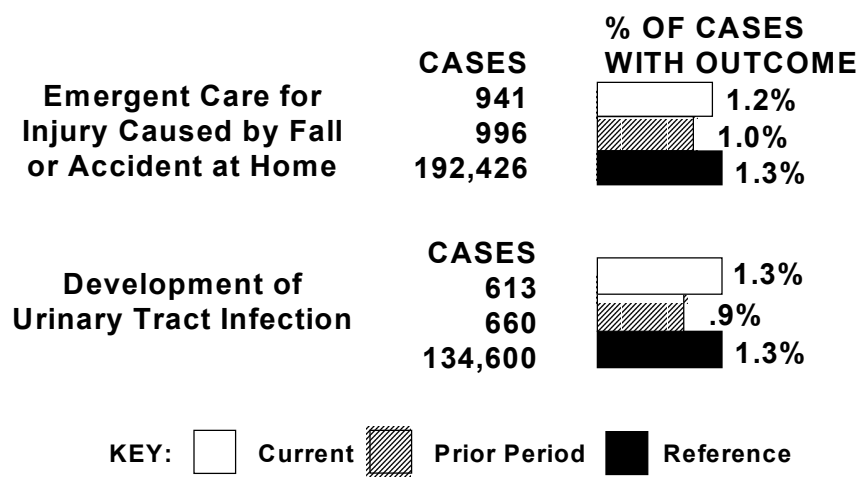
areas such as marketing and striking a desired balance between managed care patients and nonmanaged care patients.

**TABLE 2.2: Excerpt from Case Mix Profile.**

All Patients' Case Mix Profile at Start/Resumption of Care					
	Agency Mean	Reference Mean		Agency Mean	Reference Mean
<b>Demographics</b>			<b>Integumentary Status</b>		
Age (average in years)	69.6	72.8	Presence of wound/lesion (%)	25.3%	30.9%
Gender: Female (%)	61.6%	63.5%	Surgical wound(s) present (%)	18.5%	22.8%
•	•	•	•	•	•
<b>Payment Source</b>			<b>Elimination Status</b>		
Any Medicare (%)	68.0%	82.1%	Incontinent day and night (%)	9.6%	9.5%
Any HMO (%)	17.4%	14.5%	Urinary catheter (%)	3.6%	5.8%
•	•	•	•	•	•
<b>Current Living Situation</b>			<b>Acute Conditions</b>		
Lives alone (%)	27.4%	29.5%	Orthopedic (%)	28.8%	21.5%
With other family member (%)	21.7%	27.5%	Cardiac/peripheral vascular (%)	15.0%	30.6%
•	•	•	•	•	•
<b>ADL Disabilities at SOC</b>			<b>Chronic Conditions</b>		
Grooming (0-4, scale avg.)	0.79	0.85	Dependence in personal care (%)	17.1%	22.5%
Dress upper body (0-2, scale avg.)	0.57	0.58	Dependence in med. admin. (%)	37.7%	39.4%
•	•	•	•	•	•
<b>Respiratory Status</b>			<b>Diagnoses For Which Patients Are Receiving Home Care</b>		
Dyspnea (0-4, scale avg.)	1.04	1.19	Neoplasms (%)	6.8%	9.3%
•	•	•	Respiratory system diseases (%)	11.4%	13.8%
•	•	•	•	•	•
<b>Neuro/Emotional/Behavioral Status</b>					
Moderate cognitive disability (%)	10.0%	12.3%			
Severe anxiety level (%)	10.5%	11.6%			
•	•	•			
•	•	•			

Third, an adverse event outcome report that documents selected untoward or negative events for an agency's patients can be produced (Figure 2.3 presents an excerpt of this report). Such reports are available for each agency describing the number and the percentage of patients receiving emergent care for falls and several similar measures. In addition, agencies receive a list of all patients experiencing each untoward event. This permits agency staff to investigate the clinical records for these patients in order to determine whether the untoward event may have been avoidable with more appropriate care. CMS's first release of these adverse event reports occurred in January 2001, and the reports are available from the OASIS State System upon agency request.



**FIGURE 2.3: Excerpt - Adverse Event Outcome Report.****Adverse Event Outcomes****D. MOVING TOWARD OUTCOME MANAGEMENT**

The original purpose of OASIS was to serve as the core data set for outcome-based quality improvement (OBQI). The OBQI approach entails collecting patient data using OASIS at regular intervals (at start of care and every 60 days until and including time of discharge). OASIS data are computerized, edited, and transmitted to a central source (the central source for Medicare is the State agency specified by CMS, while for other purposes, such as JCAHO accreditation under ORYX, this might be a measure system vendor, etc.). An outcome report that compensates for case mix differences between the agency and the comparison or benchmark group is then produced, completing the outcome analysis component of OBQI shown in Figure 2.1. As discussed, an agency selects certain target outcomes for improvement (most commonly this would be for remediation, but it can also be for reinforcement of care processes that produce exemplary outcomes). The care provided for the selected target outcomes is then evaluated using a variety of potential methods. (A fourth report produced from OASIS data, the patient tally report, allows agencies to select cases/episodes for this assessment and evaluation of care.) Upon completion of the evaluation, a plan of action is documented that specifies which care processes will be changed, how they will be changed, who will be responsible for monitoring the implementation of the change, and how the change process will be evaluated. As noted, this completes the activities of the outcome enhancement component. The impact of these activities can be determined through the next outcome report by assessing whether the target outcomes actually were enhanced.

Figure 2.4 highlights the main features of the outcome management paradigm that OBQI offers. Note that this overall approach enables agencies to move into the domain of managing resources for the explicit purpose of being more cost effective. That is, in addition to quality improvement, OBQI is an important tool for an agency to have at its disposal in the context of the current payment system changes. In this figure, the different typeface sizes are intentional. The magnitude of the typeface for each domain in the figure reflects its progressively greater importance. Over the past year or so, the home care community, CMS, and others have been very preoccupied with OASIS and PPS. However, OASIS is by far the least important component of the outcome management paradigm. As indicated in Figure 2.4, after OASIS data are collected, they permit an evaluation of outcomes. This enables an agency to enhance outcomes in areas of inadequate performance, reinforce outcomes in areas of exemplary performance (including assessing how the same exemplary outcomes can be attained with fewer resources), and maintain outcomes where performance is adequate. In the context of managing outcomes in this way, resource allocation and management are naturally affected. Staffing patterns, as well as frequency of services, can be altered with a clear bottom-line assessment of the impacts of such alterations on what happens to patients. As this is done iteratively over a period of months and years, quality of care can be enhanced (as we have seen in the OBQI demonstration programs), and care can be rendered more cost effective. In an era when we are experiencing considerably greater emphasis on outcomes and fewer dollars available from payers, this paradigm of managing outcomes and subsequently costs can be of considerable value to agencies.

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**FIGURE 2.4: The Outcome Paradigm.**

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### **FREQUENTLY ASKED QUESTIONS**

- 1. *I feel my agency's patient population is very unique. Will the outcome reports be able to take these patient characteristics into account?***

*Your concern highlights the importance of risk adjusting the outcome reports—to take into consideration the difference between a given agency's case mix and that of the comparison group. Risk adjustment compensates for or controls the potential influence of case mix variables (i.e., risk factors) that can affect outcomes.*

- 2. *Once agencies start receiving the outcome-based quality improvement (OBQI) reports based on OASIS data submitted to the national repository, how often will they be available?***

*The OBQI reports are of three types: 1) an annual report which compares an agency's outcomes to that of a reference sample and to its outcomes in the prior year (if applicable). When risk adjusted, this report takes into consideration the difference between a given agency's case mix and the case mix of the comparison group(s); 2) a case mix report that describes the characteristics, circumstances, disabilities, and diseases of the patients with a start (or resumption) of care in a specified time period and compares these findings to a national reference standard as well as the case mix of the HHA in the preceding time period; and 3) a patient tally report that presents outcome results and case mix variables for each patient whose data contributed to the outcome report. The risk-adjusted outcome report will be available in early 2002. One additional report, the adverse event outcome report, which is advised for quality monitoring purposes, and its associated case mix report are now available for download from an HHA's State OASIS System. It is suggested that agencies access these reports no more often than quarterly.*

### **FREQUENTLY ASKED QUESTIONS**

- 3. What types of comparisons will be available in the risk-adjusted outcome reports? Will CMS be reporting regular Medicare and Medicare HMO outcome reports separately?**

OASIS data, case-mix adjusted OASIS data, and outcome reports represent a significant advancement in the ability to ascertain and assess variations in the quality of home health care delivery between regional and subgroup populations, including patients under fee-for-service, capitated, and managed care delivery programs. Working with HHAs, States, and Peer Review Organizations, CMS intends to use this information to help home health care providers improve the quality and efficacy of home health services to all patients. CMS may make comparisons between home health patients in the regular Medicare program and those enrolled in Medicare health maintenance organizations available sometime in the future.

- 4. When a patient is admitted, we set goals for that patient according to his or her specific condition and situation. How can you compare outcomes between patients when the goal isn't the same for all patients?**

There is considerable confusion surrounding outcomes. As the outcome movement has progressed, many topics have fallen under the rubric of outcomes that simply do not belong there. OBQI is premised on a clear and practical definition of outcomes as changes in patient health status between two or more time points.

According to that definition, patient goals or expected outcomes are not outcomes in OBQI. Goals are what clinicians establish (with the patient) with the hope and intention to bring the patient to a certain point in terms of health status. Goals or expected outcomes are typically highly individualized or uniquely tailored to a specific patient's plan of care, as they should be. If the patient's health status changes to indicate that the goals were met, then we have goal attainment. One care provider may set very stringent goals and another may set goals that can be fairly easily attained. It is critical to eliminate this type of subjectivity in OBQI. Therefore, actual change in health status, independently of whether subjectively determined goals are met, must be used for OBQI. If providers are compared on the basis of these types of outcomes rather than subjectively determined goals, we have a more objective standard for evaluating outcomes of care.